Device/User Interface
Software Requirements
For
Optrax SS100-B
Digital Matrix Switch

Version 1.0

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Submitted by: _____
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1.0 Introduction

This document provides device and user interface requirements for the Optrax SS100-B Digital Matrix Switch.

2.0 Required Functionality

The Optrax SS100-B is a 16 X 16 digital matrix switch. All paths consist of two separate channels, clock and data, which are always handled in pairs by the switch controller. The switch's role in the automated tracking station will be to connect bit synchronous data and clock signals to NASCOM, recording devices, data processing, and test devices. One input can be routed to one or more outputs.

The switch will be connected to and controlled by the Data Handling Node. It will be wired, via patch panels, to the input and output devices. The full capabilities of the device will be required by the automated tracking station.

3.0 Parameter Ranges

The parameter ranges will not differ from the device's capabilities.

4.0 Communications Protocol

The switch communicates with the controlling computer using the RS-232 protocol. The switch will be directly connected to the controlling computer with a serial cable.

5.0 GUI Functionality

The user interface will include two interactive windows. The Status/Control window will display the current connections of the switch and provide a mechanism by which the connections can be re-routed. The Settings/Test window will provide option with which the user can initiate One Full Path test. It will also include options for setting touch panel modes: Enabled, Sleep, Debug, Keypad Click, and Local Echo.

6.0 Command Scripting

See Appendix B: Scripting Requirements

7.0 High-level Status

The switch does not provide any information that is useful as a real-time status, therefore there is no real-time status information to be gathered and displayed. In lieu of a real-time status, the high-level status window will display the input-to-output connections of the switch.

8.0 Replacement Algorithm

There is only one switch therefore it cannot be replaced with a backup.

If a device on the output side of a chain is signaling an error then the switch's connection may be at fault. If the switch indicates a bad connection then the error condition will be brought to the attention of the operator who will have to replace a circuit card.

Appendix A: Graphical User Interface Requirements

There is no additional information.

Appendix B: Scripting Requirements

Master	Node	Comments/Error Handling

Resource Request Specific
Parameter: unit number
	Start
	
	    Check allocation table for unit number
	
	    If available then
	        Mark unit as assigned to this Master
	        Reply "Unit # assigned"
	        Open log file
	        Retrieve configuration file from this
	        Master
	    Else
	        Reply "Unit # not available"
	    End
	
	Stop
		There is only one Optrax SS100-B Digital Matrix Switch. Therefore the request will always be for the same switch.

Resource Request General	Start
	
	    Check allocation table for an available
	    unit using the least recently used method
	
	    If available then
	        Mark unit as assigned to this Master
	        Reply "Unit # assigned"
	        Open log file
	        Retrieve configuration file from this
	        Master
	    Else
	        Reply "No units available"
	    End
	
	Stop	

Setup Parameter: unit number	Start Verify possession of unit by this Master	

Master	Node	Comments/Error Handling

	If not assigned to this Master then
	    Inform this Master
	      Stop
	End
	
	Load and Verify configuration file
	
	If configuration file error then
	    Inform this Master
	      Stop
	End
	
	Stop
		>> Operator intervention required
		
		>> Operator intervention required

Start Support
Parameter: unit number
	Start
	
	    Verify possession of unit by this Master
	
	If not assigned to this Master then
	    Inform this Master
	      Stop
	End
	
	Stop
		>> Operator intervention required

Stop Support
Parameter: unit number
	Start
	
	    Verify possession of unit by this Master
	
	If not assigned to this Master then
	    Inform this Master
	      Stop
	End
	
	Stop
		>> Operator intervention required

Takedown Parameter: unit number	Start Verify possession of unit by this Master	

Master	Node	Comments/Error Handling

	If not assigned to this Master then
	    Inform this Master
	      Stop
	End
	
	Mark unit as not assigned
	Close log file
	Send log file to this Master
	
	Stop
		>> Operator intervention required